REMARKS

Applicant thanks the Patent Office for the careful attention accorded this application and respectfully requests reconsideration in view of the present Amendment set forth above and remarks set forth below.

In response to the Office Action dated October 20, 2004, Applicant has canceled claims 1-7 without prejudice or disclaimer, and added new Claims 8-13 for continued prosecution. Applicant reserves the right to file one or more continuation applications based on the canceled claims.

Independent claim 8 is directed to a novel method of treating monocular amblyopic conditions within a patient's human vision system having left and right visual channels so that persistent binocular vision is achieved. The method involves (a) applying a complex afocal binocular lens system to an amblyopic eye of a patient, including a contact lens on the amblyopic eye, to provide the amblyopic eye with more magnification than the non-amblyopic eye during treatment so as to over-stimulate the neural pathways along the visual channel of the amblyopic eye, without applying occlusion therapy or penalization therapy along the visual channel not afflicted by amblyopia. During the course of treatment, the powers of the patient's human vision system including the patient's power of stereoscopic vision, are tested (i.e. examined), and the optical correction provided by said complex afocal binocular lens system is adjusted to enable good functional vision bilaterally. When, during the course of treatment, the stereoscopic power of the patient's human vision system approaches a predetermined amount of disparity, then the magnification in said complex afocal binocular lens system before the amblyopic eye is adjusted so as to enable a state of harmony to be attained between the left and right visual channels of the patient's human vision system, at which a state of persistent binocular vision is achieved in the patient.

Independent claim 12 is directed to a method of treating binocular amblyopic conditions within a patient's human vision system having left and right visual channels so that persistent binocular vision is achieved. The method involves applying pair of reverse-afocal binocular

lens systems before a pair of amblyopic eyes in a patient so as to treat binocular amblyopia. This step involves applying a contact lens on each amblyopic eye to provide the more amblyopic eye with magnification and the less amblyopic eye with minification during treatment so as to over-stimulate the neural pathways along the visual channel of more amblyopic eye and under-stimulate the neural pathways along the visual channel of the less amblyopic eye, in comparison to the more amblyopic eye. During the course of treatment, the powers of the patient's human vision system, including the patient's power of stereoscopic vision, are tested (i.e. examined), and the optical correction provided by said pair of reverse-afocal binocular lens systems is adjusted to enable good functional vision bilaterally. When the patient's power of stereoscopic vision approaches a predetermined amount of disparity, then the magnification in said pair of reverse-afocal binocular lens systems before the patient's eyes is adjusted so as to enable a state of harmony to be attained between said left and right visual channels of the patient's human vision system, at which a state of persistent binocular vision is achieved in the patient.

Applicant submits herewith a Terminal Disclaimer to overcome any obviousness-type double patenting rejection in view of Applicant's copending Application No. 10/885,483.

Applicant will also file an Information Disclosure Statement (IDS) in the present Application shortly, under separate transmittal letter.

Applicant has reviewed the prior art cited in the present Application and none of these prior art references, when taken alone or in combination with each other, disclose, teach or suggest the novel method of treating amblyopic conditions in patients which teaches (i) the express abandonment of traditional methods of occlusion and penalization therapies (e.g. using eye patches and atrophine drops) and (ii) the adoption of a novel regimen of selective magnification (in amblyopic eyes of patients) and minification (in the non- or less- amblyopic eyes thereof) ---achieved by applying complex afocal binocular lens systems with contact lens elements applied to the eyes of the patient-- so as to stimulate the visual channels of the patient's human vision system during the course of treatment, and thereby enabling a state of harmony to be attained between the left and right visual channels of the patient's human vision

system, at which a state of persistent binocular vision is achieved in the patient.

No such innovative teachings, or remarkable results achieved by Applicant in his practice of the claimed invention, are disclosed, taught or hinted at in the prior art.

In view, therefore, of the Amendment and Remarks set forth above, Applicant firmly believes that the present invention, defined by Claims 8-14, is neither anticipated by, nor rendered obvious in view of the prior art of record, and that the present application is now believed to be in all respects in condition for allowance.

Favorable action is earnestly solicited.

Applicant submits in payment of the requisite Terminal Disclaimer and Extension of Time fees of $575.00, Thomas J. Perkowski, Esq., P.C. Check No. 4892 in the same amount. The Commissioner is also authorized to charge any fee deficiencies or overpayments to Deposit Account 16-1340.

Respectfully submitted,

Dated: April 20, 2005

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Thomas J. Perkowski, Esq.
Dated: April 20, 2005

STEP of Method of TREATING Amblyopia

A — During the perinatal period (immediately after birth), the patients visual system is examined to determine its state of health and function. The purpose of the examination is to rule out organic pathology of the visual system while plasticity is still present within brain, and also to check for red reflex of retina, ocular motility, and basic facial recognition of parents.

B — For patients having visual high risk, indicated by premature birth, low birthweight, existence of family history for ocular dysfunction, e.g. Congenital Cataracts, glaucoma, etc.) or birth injury (cerebral palsy), they are referred to a pediatric ophthalmological specialist for examination & history. The examination should include a cycloplegic refraction in all age groups, and neurosensory tests that are age appropriate. For non-verbal patients, visual evoked responses or evoked potentials should be used with random stereo generators. For verbal patients, conventional Snellen line letter or pictures should be used.

C — If the examined patients vision is determined to be subnormal, then an organic etiology should be performed on patients for determining the causes of ocular versus cerebral pathology, and a physiologic etiology for determining the causes of defocused ocular channel(s).

D — If the cause of patients subnormal vision is due to defocusing conditions existing in both of the patient's eyes, then cycloplegic refraction is used to determine and prescribe optical correction (Rx) required by patient.

E — If the cause of patients subnormal vision is due to Cataract(s) existing in either or both eyes of the patients eyes, then the eyes are rehabilitated (i.e. surgery)

A B

FIG. 5A

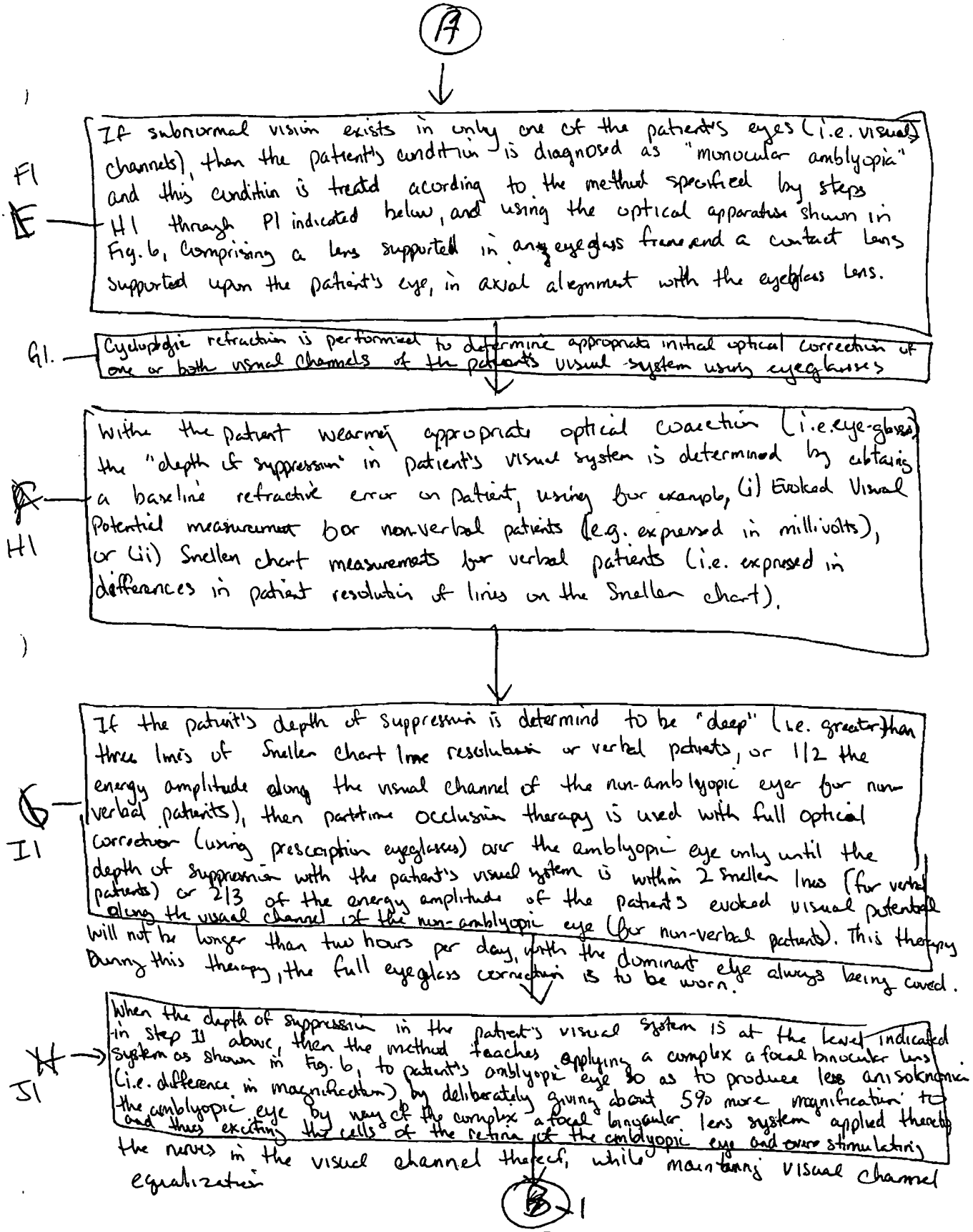
A
If subnormal vision exists in only one of the patient's eyes (i.e. visual channels), then the patient's condition is diagnosed as "monocular amblyopia" and this condition is treated according to the method specified by steps H1 through P1 indicated below, and using the optical apparatus shown in Fig. 6, comprising a lens supported in an eyeglass frame and a contact lens supported upon the patient's eye, in axial alignment with the eyeglass lens.
F1
E
G1.
Cycloplegic refraction is performed to determine appropriate initial optical correction of one or both visual channels of the patient's visual system using eyeglasses
With the patient wearing appropriate optical correction (i.e. eye-glasses), the "depth of suppression" in patient's visual system is determined by obtaining a baseline refractive error on patient, using for example, (i) Evoked Visual Potential measurement for non-verbal patients (e.g. expressed in millivolts), or (ii) Snellen chart measurements for verbal patients (i.e. expressed in differences in patient resolution of lines on the Snellen chart).
H1
If the patient's depth of suppression is determined to be "deep" (i.e. greater than three lines of Snellen chart line resolution for verbal patients, or 1/2 the energy amplitude along the visual channel of the non-amblyopic eye for non-verbal patients), then part-time occlusion therapy is used with full optical correction (using prescription eyeglasses) over the amblyopic eye only until the depth of suppression with the patient's visual system is within 2 Snellen lines (for verbal patients) or 2/3 of the energy amplitude of the patient's evoked visual potential along the visual channel of the non-amblyopic eye (for non-verbal patients). This therapy will not be longer than two hours per day, with the dominant eye always being cured. During this therapy, the full eyeglass correction is to be worn.
I1
When the depth of suppression in the patient's visual system is at the level indicated in Step I1 above, then the method teaches applying a complex afocal binocular lens system as shown in Fig. 6, to patient's amblyopic eye so as to produce less anisoknonia (i.e. difference in magnification) by deliberately giving about 5% more magnification to the amblyopic eye by way of the complex afocal binocular lens system applied thereto and thus exciting the cells of the retina of the amblyopic eye and over stimulating the nerves in the visual channel thereof, while maintaining visual channel equalization
J1
B1

FIG. 5B

581

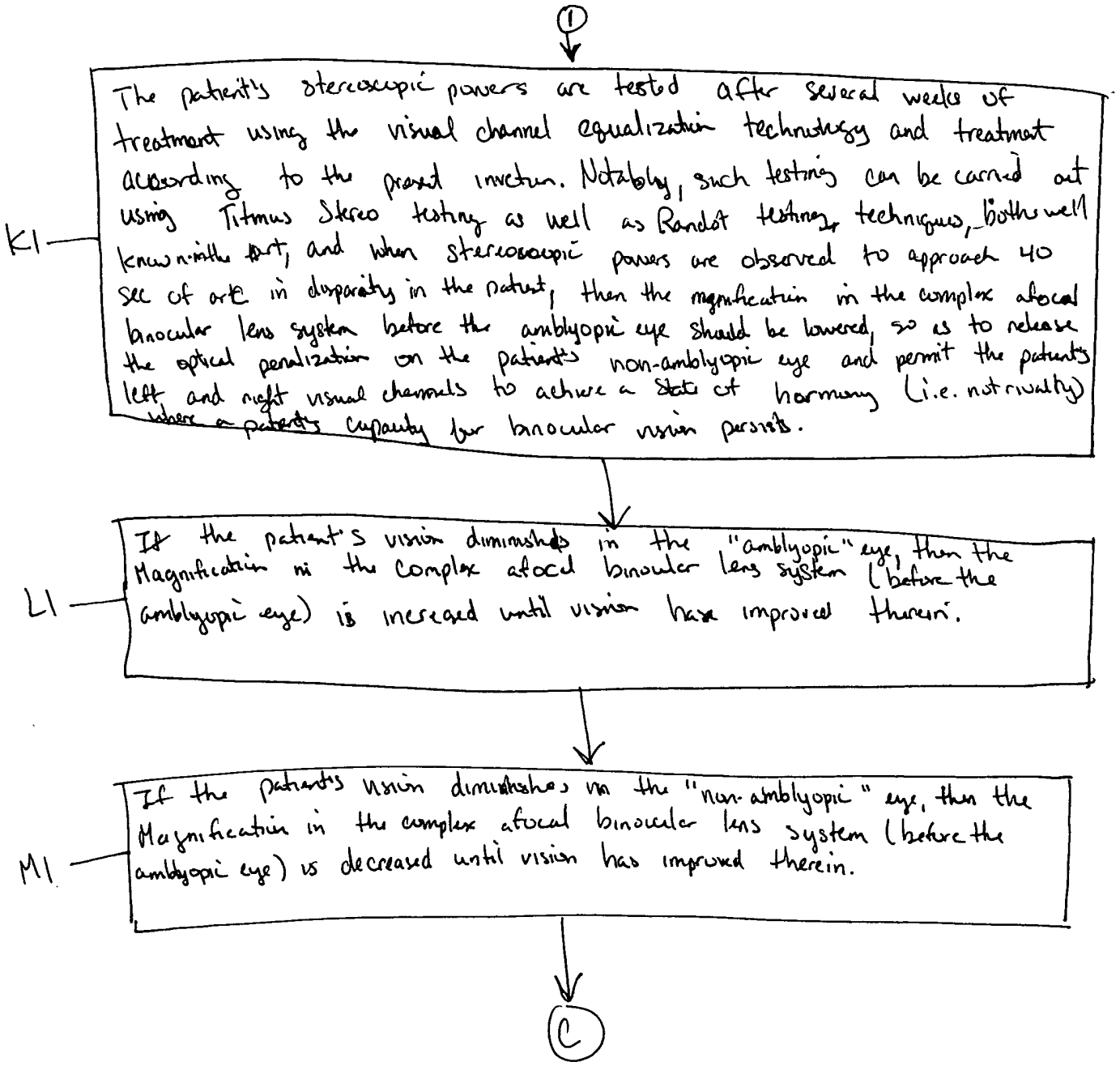
1
The patient's stereoscopic powers are tested after several weeks of treatment using the visual channel equalization technology and treatment according to the present invention. Notably, such testing can be carried out using Titmus Stereo testing as well as Randot testing techniques, both well known in the art, and when stereoscopic powers are observed to approach 40 sec of arc in disparity in the patient, then the magnification in the complex afocal binocular lens system before the amblyopic eye should be lowered, so as to release the optical penalization on the patient's non-amblyopic eye and permit the patient's left and right visual channels to achieve a state of harmony (i.e. not rivalry) where a patient's capacity for binocular vision persists.
K1
If the patient's vision diminishes in the "amblyopic" eye, then the Magnification in the complex afocal binocular lens system (before the amblyopic eye) is increased until vision have improved therein.
L1
If the patient's vision diminishes in the "non-amblyopic" eye, then the Magnification in the complex afocal binocular lens system (before the amblyopic eye) is decreased until vision has improved therein.
M1
C

FIG. 5B2

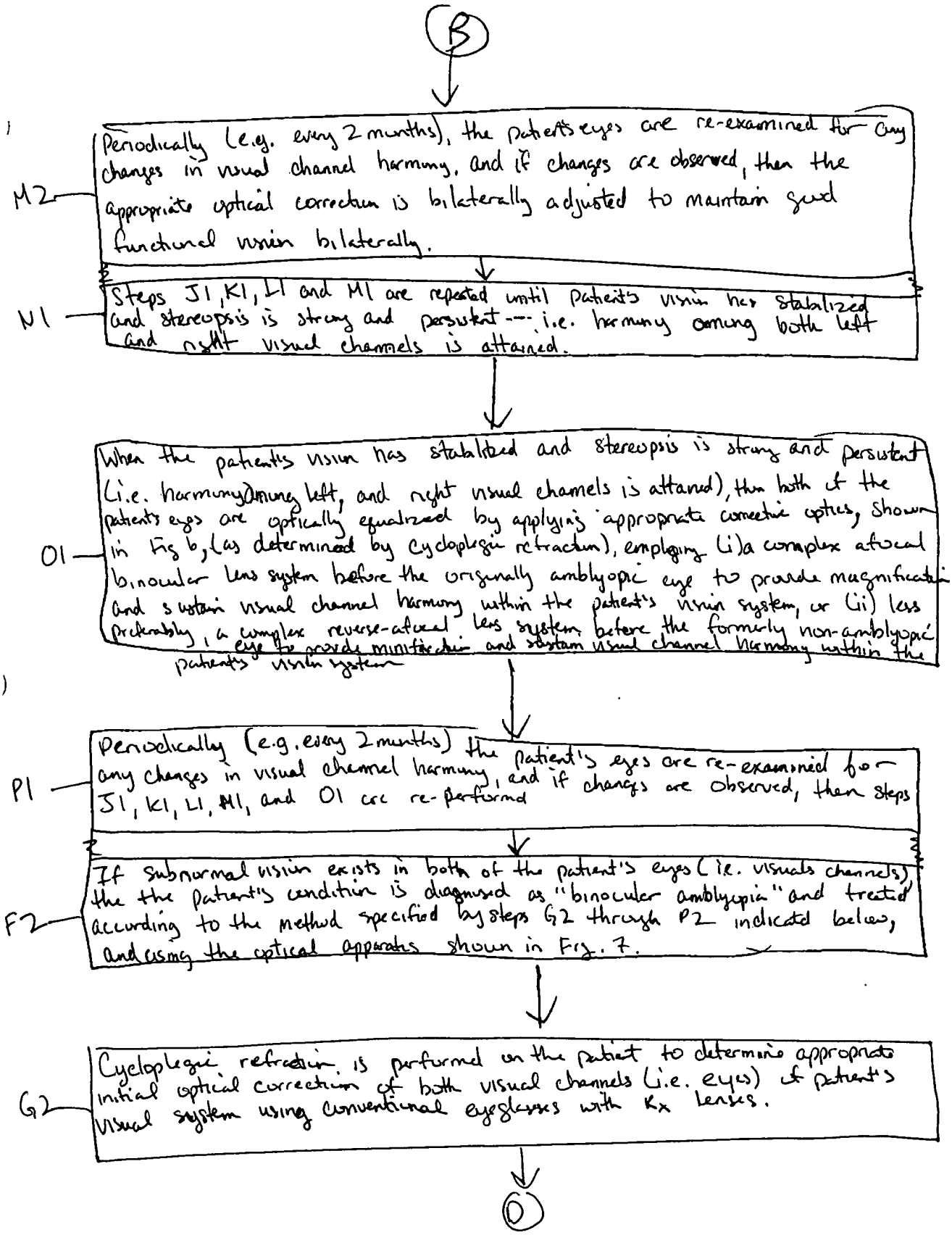
B
M2
Periodically (e.g. every 2 months), the patients eyes are re-examined for any changes in visual channel harmony, and if changes are observed, then the appropriate optical correction is bilaterally adjusted to maintain good functional vision bilaterally.
N1
Steps J1, K1, L1 and M1 are repeated until patient's vision has stabilized and stereopsis is strong and persistent --- i.e. harmony among both left and right visual channels is attained.
O1
When the patients vision has stabilized and stereopsis is strong and persistent (i.e. harmony among left, and right visual channels is attained), then both of the patients eyes are optically equalized by applying appropriate corrective optics, shown in Fig 6, (as determined by cycloplegic refraction), employing (i) a complex afocal binocular lens system before the originally amblyopic eye to provide magnification and sustain visual channel harmony within the patient's vision system, or (ii) less preferably, a complex reverse-afocal lens system before the formerly non-amblyopic eye to provide minification and sustain visual channel harmony within the patient's vision system
P1
Periodically (e.g. every 2 months) the patient's eyes are re-examined for any changes in visual channel harmony, and if changes are observed, then steps J1, K1, L1, M1, and O1 are re-performed
F2
If subnormal vision exists in both of the patient's eyes (ie. visuals channels) the the patient's condition is diagnosed as "binocular amblyopia" and treated according to the method specified by steps G2 through P2 indicated below, and using the optical apparatus shown in Fig. 7.
G2
Cycloplegic refraction is performed on the patient to determine appropriate initial optical correction of both visual channels (i.e. eyes) of patient's visual system using conventional eyeglasses with Rx lenses.
D

FIG. 5C

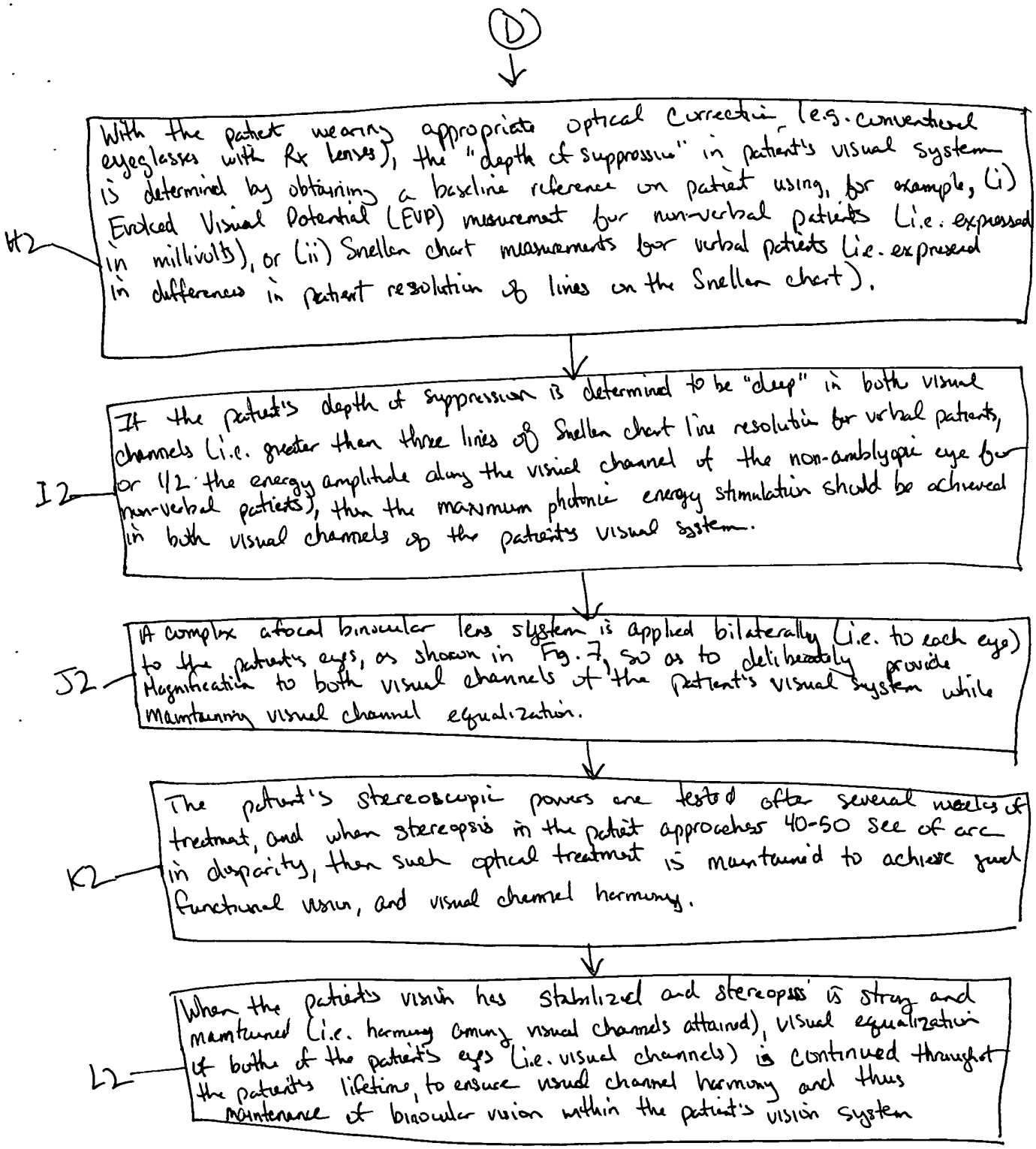
D
With the patient wearing appropriate optical correction (e.g. conventional eyeglasses with Rx lenses), the "depth of suppression" in patient's visual system is determined by obtaining a baseline reference on patient using, for example, (i) Evoked Visual Potential (EVP) measurement for non-verbal patients (i.e. expressed in millivolts), or (ii) Snellen chart measurements for verbal patients (i.e. expressed in differences in patient resolution of lines on the Snellen chart).
H2
If the patient's depth of suppression is determined to be "deep" in both visual channels (i.e. greater than three lines of Snellen chart line resolution for verbal patients, or 1/2 the energy amplitude along the visual channel of the non-amblyopic eye for non-verbal patients), then the maximum photonic energy stimulation should be achieved in both visual channels of the patient's visual system.
I2
A complex afocal binocular lens system is applied bilaterally (i.e. to each eye) to the patient's eyes, as shown in Fig. 7, so as to deliberately provide Magnification to both visual channels of the patient's visual system while maintaining visual channel equalization.
J2
The patient's stereoscopic powers are tested after several weeks of treatment, and when stereopsis in the patient approaches 40-50 sec of arc in disparity, then such optical treatment is maintained to achieve good functional vision, and visual channel harmony.
K2
When the patient's vision has stabilized and stereopsis is strong and maintained (i.e. harmony among visual channels attained), visual equalization of both of the patient's eyes (i.e. visual channels) is continued throughout the patient's lifetime, to ensure visual channel harmony and thus maintenance of binocular vision within the patient's vision system
L2

FIG. 5D

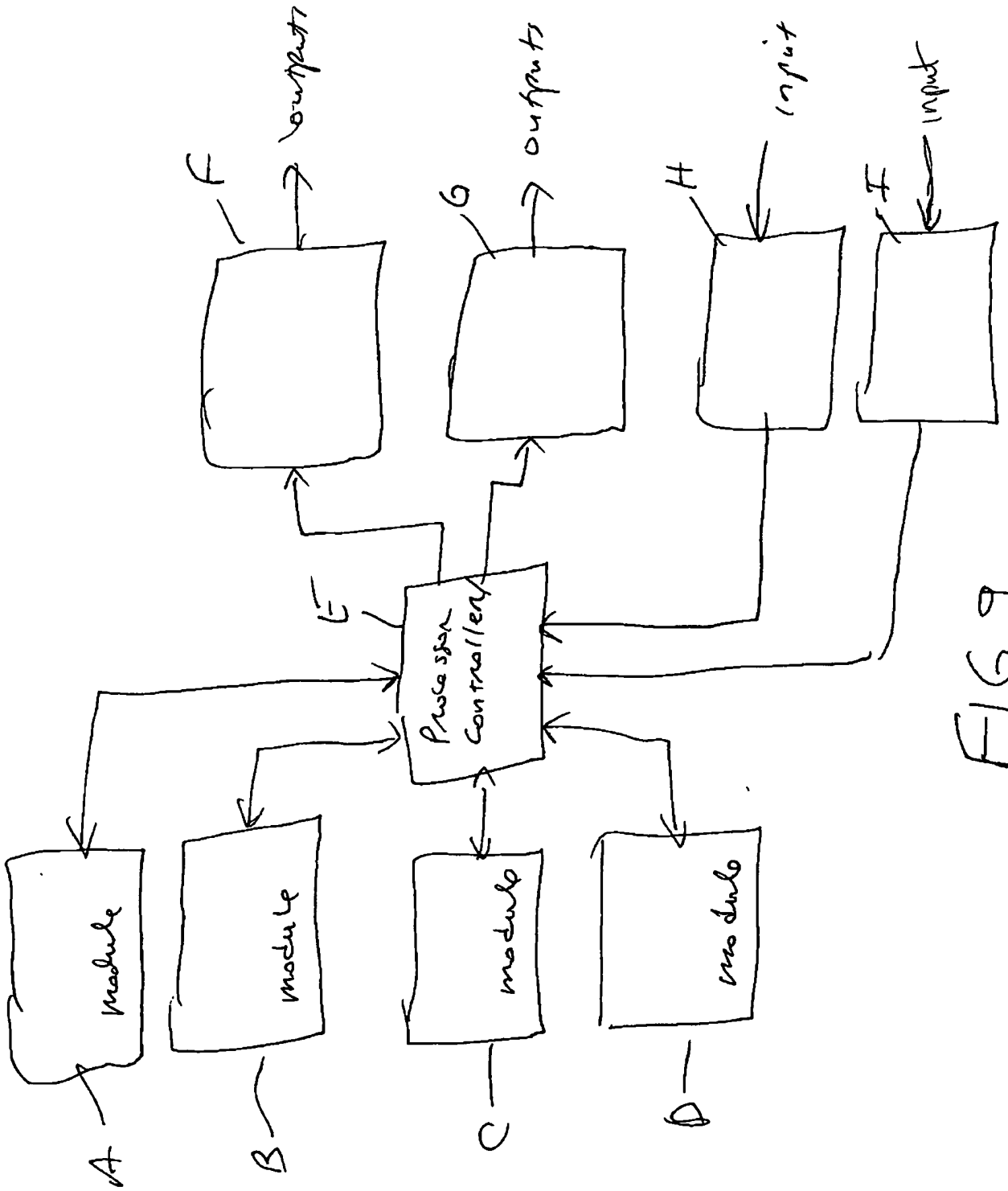
F
outputs
G
outputs
H
input
I
input
E
Processor Controller
module
module
module
module
A
B
C
D

FIG 9.